

1 WHAT IS CLAIMED IS:

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- 3 1. A homogeneous, amorphous catalyst support comprising a
4 modifying-metal-oxide and a base-metal oxide, in which the
5 modifying-metal-oxide is homogeneously distributed throughout the
6 base-metal oxide, the catalyst support having a Surface to Bulk
7 modifying-metal /base-metal atomic ratio of from about 0.6 to about 1.3
8 and exhibiting an X-ray diffraction having broader line width and lower
9 intensity than is exhibited by the base-metal oxide.
- 10
- 11 2. A catalyst support according to claim 1, wherein the
12 modifying-metal-oxide is selected from the group consisting of silica,
13 titania, zirconia, magnesia and mixtures thereof.
- 14
- 15 3. A catalyst support according to claim 1, wherein the base-metal-oxide
16 is selected from the group consisting of alumina, silica, titania and
17 mixtures thereof.
- 18
- 19 4. A catalyst support according to claim 3, wherein the
20 modifying-metal-oxide is selected from the group consisting of silica,
21 titania, zirconia, magnesia and mixtures thereof.
- 22
- 23 5. A catalyst support according to claim 4, wherein the base-metal oxide
24 is alumina and the modifying-metal-oxide is silica.
- 25
- 26 6. A catalyst support according to claim 5, wherein the catalyst support
27 comprises from about 70 wt% to about 99.75 wt% alumina.
- 28
- 29 7. A catalyst support according to claim 5, wherein the catalyst support
30 comprises from about 90 wt% to about 99 wt% alumina.
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- 32 8. A catalyst support according to claim 5, which has been prepared by a
33 cogel process.

- 1 9. A homogeneous, amorphous silica-modified-alumina catalyst support
2 having a Surface to Bulk Si/Al ratio of from about 0.6 to about 1.3 and
3 exhibiting an X-ray diffraction having broader line width and lower
4 intensity than is exhibited by unmodified alumina.
- 5
- 6 10. A catalyst support according to claim 9, wherein the Surface to Bulk
7 Si/Al ratio is from about 0.8 to about 1.2.
- 8
- 9 11. A catalyst support according to claim 9, wherein the Surface to Bulk
10 Si/Al ratio is from about 0.9 to about 1.1.
- 11
- 12 12. A catalyst support according to claim 9, wherein the Surface to Bulk
13 Si/Al ratio is from about 1.0.
- 14
- 15 13. A catalyst support according to claim 9, wherein the catalyst support
16 comprises from about 70 wt% to about 99.75 wt% alumina.
- 17
- 18 14. A homogeneous, amorphous silica-modified-alumina catalyst support
19 exhibiting an X-ray diffraction having a broader linewidth and lower
20 intensity than is exhibited by unmodified alumina.
- 21
- 22 15. A catalyst support according to claim 14, wherein the full linewidth is
23 50% greater than the linewidth of unmodified alumina when measured
24 at half height.
- 25
- 26 16. A catalyst support according to claim 14, wherein the intensity is at
27 least 25% lower than for the unmodified alumina.
- 28
- 29 17. A catalyst for the Fischer-Tropsch process comprising a homogeneous,
30 amorphous catalyst support comprising a modifying- metal-oxide and a
31 base-metal oxide, in which the modifying-metal-oxide is
32 homogeneously distributed throughout the base-metal oxide, the
33 catalyst support having a Surface to Bulk modifying-metal /base-metal

1 atomic ratio of from about 0.6 to about 1.3 and exhibiting an X-ray
2 diffraction having broader line width and lower intensity than is
3 exhibited by the base-metal oxide and a catalytically active Group VIII
4 metal.

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6 18. A catalyst according to claim 17, further comprising at least one
7 promoter.

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9 19. A catalyst according to claim 17, wherein the modifying-metal-oxide is
10 selected from the group consisting of silica, titania, zirconia, magnesia
11 and mixtures thereof, the base-metal-oxide is selected from the group
12 consisting of alumina, silica, titania and mixtures thereof.

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14 20. A catalyst according to claim 19, wherein the catalytically active
15 Group VIII metal is selected from the group consisting of cobalt, iron
16 and mixtures thereof.